The weather appeared to be favourable for the last thirty minutes of the transit, and the observations of the egress was successfully made. After the second external contact, when the limb of the Sun had resumed its natural appearance of an arc, a slight indentation was directly formed in the Sun's limb. This indentation was not so dense as that caused by the planet, but was more or less tending to an ash colour, and was apparently greater in arc than the previous one.

The following are the observed sidereal times :—

	h	m	s
Second internal contact	16	47	15·4
„ external „	17	15	27·2
Disappearance of the slight indentation noticed above	17	15	54·0

1875, *February* 20.

Account of Longitude Operations on the way from Mauritius homewards. By Lord Lindsay.

Chronometric Run—Mauritius to Aden.

At Mauritius.—Observatory at Belmont was connected with the railway station by a field telegraph, and railway lines; signals were exchanged with Belmont and the railway station, on evenings January 5 and 7, and the chronometers on board the "Dupleix," were compared with the standard chronometer immediately after the exchange of signals.

On the afternoon of January 1 the "Dupleix" sailed, and the following morning anchored off St. Denis. Here the thirteen chronometers of the Dutch Expedition were brought on board and compared; thus Belmont and St. Denis was fixed, and the thirteen Dutch chronometers were thrown into the expedition. The Dutch had good observations on the evening before.

On the evening of January 13 the "Dupleix" reached Seychelles, but on account of measles at Bourbon was put in quarantine. After very considerable difficulty on both sides, both from the local health authorities and the Captain of the "Dupleix," two chronometers were lowered astern, taken off by Captain Wharton of the "Shearwater, and compared with seven chronometers on board the "Shearwater." On return it was found that no sensible alteration had taken place in the rates of the chronometers during transport. Captain Wharton and his officers obtained equal altitudes of the Sun, the morning before and after; the following are the results (deduced from data just received from Captain Wharton) :—

Lord Lindsay's Standard Chronometer Fast of Local M.T. at Hondouls Jetty, Matre, at 10 P.M. *Jan.* 13, *from Obs. of Jan.* 12, 13, *and* 14, *by Officers of H.M.S. "Shearwater."*

From Obs. by	Chron. A	B	C	D	E	F	G
	m s	m s	m s	m s	m s	m s	m s
Capt. Wharton	7 39·43	7 39·34	7 39·29	7 39·39	7 39·21	7 39·08	7 39·43
Lieut. Langden	39·48	39·33	39·21	39·01	39·37	39·12	39·15
„ Wright	38·92	38·82	38·76	38·91	38·71	38·57	38·96
„ Moore	39·30	39·18	39·02	39·28	39·09	38·96	39·33
Mean	7 39·28	7 39·16	7 39·09	7 39·18	7 39·09	7 39·93	7 39·26

These results are entirely satisfactory, and showing that little has been lost from our not being allowed to land an instrument at Seychelles.

On the evening of the 20th the "Dupleix" arrived at Aden, and within three hours good observations and comparisons were made.

Dr. Low transhipped and continued his voyage to Suez.

The weather was very cloudy at Aden. Observations were obtained on the evenings of 25th, 28th, 29th (early morning of 30th), 30th (early morning of 31st), and 31st (early morning of February 1). No other opportunities for observations occurred.

The whole of the chronometers were compared every day, and immediately before and after each set of telegraph exchanges.

Telegraph exchanges were made with Suez on Saturday, January 30 (early Sunday morning), on January 31 (Sunday evening), and January 31 (early Sunday morning), and with Bombay on January 31, immediately before the exchanges with Suez, both on Sunday evening and Monday morning.

The exchanges with Suez were found to be very satisfactory. The results for "Current Time" turn out as follow:—

	m	s
From exchanges of Sunday morning	+ 0	47
„ „ Sunday evening	+ 0	42
„ „ Monday evening	+ 0	45

On February 1, I left for Suez. On arrival, February 8, found a steamer of the Khedive's, and an officer of Engineers, to convey my baggage ashore. Obtained observations same evening.

On February 9, Dr. Low and I had two long series of observations for personal equation in observing stars.

On the 10th an artificial cable was prepared, and four series of determinations made for personal equation in observing Thomson's galvanometer signals.

On the 11th Dr. Low was laid up unwell and unable to observe.

I had the altazimuth packed up and conveyed to Mr. Hunter's station and mounted there, and at night made a series of time observations, as follows:—

(1). At Hunter's Station.
Compared 9 chronometers.
Made series of time observations.
Compared 9 chronometers.
Conveyed 9 chronometers to Gill's station.

(2). At Gill's Station.
Compared 9 chronometers.
Observed double series for time determination with Low's Transit.
Compared 9 chronometers.
Conveyed 9 chronometers to Hunter's Station.

(3). At Hunter's Station.
Compared 9 chronometers.
Made a series for time determination.
Compared 9 chronometers.

This occupied me all night long.

Next day took a truck, had all packed, and on 13th started for Cairo, arrived there late that night.

February 14. Got carts, &c., and conveyed chronometers and apparatus to Observatory. Saw General Stone, who asked me to look at and report upon their instruments.

February 15. Spent all day at Observatory, examined and reported on it and instruments.

February 16. Left for Alexandria.

February 17 and 18. Installing myself here, building pillar, and waiting a clear night.

February 19. Exchanged signals with Suez: very fine observations before and after.

February 20. Exchanged signals with Suez: very fine observations before and after.

February 21 and 22. Relays end for end, and night of 22nd cloudy.

February 23. A splendid set of exchanges, air perfectly still, and fine observations both before and after.

February 24. Exchanged signals, but no observations were possible here from cloud.

February 25. Good observations here and at Suez, but owing to a fault on the line no exchanges possible—resolved to adopt Low's observations of 24th, and to interpolate the rates of the 9 chronometers I have here from observations of 23rd and 25th for error of chronometer on 24th. Giving this latter a low weight, the splendid night of 23rd will equalise the weights of the first two with the last two nights.

February 26. Low knocked up and unable to work.

February 27. Low packed up. Same night observed fine

series for time in order to exchange with Berlin; but owing to a fault, afterwards found to be at Malta, no signals could be exchanged.

February 28. A splendid set of observations and exchanges with Berlin, the observations and exchanges lasting all night long.

March 1 and 2. Hopelessly cloudy, reduced the exchanges between Suez and Alexandria.

The results for Current Time are—

		Difference from Mean.
	s	s
From exchanges of 19th	+ 0·057	+ 0·027
„ „ 20th	+ 0·022	− 0·008
„ „ 23rd	− 0·011	− 0·048
„ „ 24th	+ 0·053	+ 0·023
Current Time	0·030	6

The probable error of the result will be very small, especially when we consider that no chronograph is used.

March 3. Low and I made two series of comparisons of personal equation; and between the series I made a series of observations with his transit to find if there was any difference in my personal equation in using the altazimuth and the broken transit.

(This was necessary in the connection of the two stations, Gill's and Hunter's, at Suez).

March 4. Low left for Malta, I for Alexandria.

March 5. Selected site for base line with General Stone.

March 6. Returned to Alexandria, exchanged signals with Berlin. Storm of wind and rain prevented observations.

Photography in the Transit of Venus. By R. A. Proctor.

I do not know whether Capt. Abney's remarks (p. 309) relate to a paper by the Chief of the Washington Observatory, which appeared in *Harper's Weekly Magazine*, or to an essay of mine quoting Prof. Newcomb's opinion in one of the quarterly magazines. Possibly to neither, as the great difficulty dwelt on by Newcomb is "placed on one side" in Capt. Abney's paper. It may be desirable to note the nature of that difficulty. The American Transit Committee, after many experiments and long inquiry, came to the conclusion that the diameter of the Sun, as depicted by the photoheliograph, could not be ascertained (at least with the extreme accuracy necessary for determining the solar parallax) either by calculation (depending on the optical